

GRC Exploration Systems Projects

PROGRAM MANAGERS: Fred J. Kohl & Thomas J. Sutliff

BASELINE: 12/14/04

STATUS AS OF: 02/28/05

		2004 2005							20	06			20	07			20	80			20	009		2010					
		FY 2004			FY	2005			FY 2	FY 2006			FY 2	2007			FY 2	2008			FY 2	2009			FY	2010		FY 2	011
		3rd	4th	1st	2nd		4th	1st	2nd	3rd	4th	1st			4th	1st		3rd	4th	1st		3rd	4th	1st	2nd	3rd	4th	1st	2nd
	Increments	AIWIJ	JAIS	O N	10	1		12	J F W		3	1-		15	JAS	16		17		18	19	20	21	22	23	24	25	26	3 F W
	Russian Flt.			16F	17P	105 181	a a	ıs		128		138	-	148		15S		16S		17S-1	17S-2	18S-1	18S-2	19S-1	19S-2	208-1	20\$-2	21S-1	
	ATV Flight				Ť					ATV-1		ATV-2				ATV-	3			ATV	7-4	Ĭ	Ť	ATV-	-5	Ť	Ť		
	ISS Flight				İ	LF-1	ULF1.1	12A		13A	13A.1 1	5A 10	A 1E	ULF-2	AJ/A	B A	UF-3 U	F-4	UF-5	20A	19A		14A						
6.1.1	Advanced Life Support (ALS)																		-				-						
6.1.1.1	Air Revitalization (AR) Biofilter for Removal of Trace Air Toxins (Charles Niederhaus)	Project 3/04	ct Initiati	on			BAA Pro	pposal		C-9 1	Testing		Biolog	gical Tes	sting			Protot	ype Deli	very	Long Te	erm Test	ing	Inte	egrated	Testing		TRL5 Pr	rototype
	Reactor Beds Modeling - Fines Generation (Juan Agui)			Fir	es Gen		nplete Ce	entrifuge	tests	∇c	// Prop	Drop To	Testing AA ower Test Design f		∨ Mo lete	ototype A onitoring Monitori	System	Drop To		Testing	PDR of monous	sys.	Flig Prof	totype					
6.1.1.2	Water Reclamation (WR)				T																								
	Packed Bed Reactor Experiment (PBRE) (Monica Hoffmann)	Proje	ct Initiat	tion			caling A nterim Re		· •	7 PDR	l _	Reacti	∏Phase on Kinet inary Re	ics	_	ew Reaction	│	3 Safety SR / FHA ics	Review Laur	r nch	Prelii		SS Data A	1					
	Liquid-Gas Separator Experiment (SEP) (John Snead)				Projec	ct Kick-off				RCR/F	RDR Sa	ase 0/1 F fety Revi	iew	Safety	Review	CDR/VR	R 				V FHA	La	unch				al Report		
	Primary Water Processor (PWP) (John Caruso)				Wi	iper/Film		E	/aporate		ts its its its its its its its i	Splash	le Disk μg	Pilot Sco	oop µg `	Tests ∇ nserµg T	Interim ests	Results	Sys De	sign Mo	dification	ns / Integra	ted µg Te	Final R	tesults				
	Passive and Active Gas-Liquid Separator Devices (PAS) (Roger Slutz)	P	roject In	itiation						parators Final Re		BR Sepa	rator omplete		F	Report J			Report Separa	on iner	tial		ve Separ parison F		ort				
	Advanced Liquid Pumps (ALP) (Amy Jankovsky)			· ·	ts. Dev	oject Star	🗸 Fit.	Rig Build	up com sting Se	olete ries 1 co	mp	esting S	eries 2 co	V		It Safety It Testing	Series		rt										
	ALS Two-Phase Modeling (TPM) (John Caruso)			Project I	nitiatio		l	2 Lo	w-g Moo ssessme		rt 			Phase I	Exp Tes t)	ts	Phas (2st s		Isother	mal Flov			rim Heat Isfer Rep		erim Pha ange Re		Heat Tra	nsfer Rep	ort
6.1.1.3	Thermal Control (TC)																	· v							Ĺ				
	Capillary Flow Experiment (CFE) (Donna Bohman)	Ph 3	Fit Safety for VG &	y Review ICF	▼ V	PSRP1 for PSRP II	for VG &	F units ICF units I.1 Flight			nits Retu	rm 	Final	Report															
	Critical Velocities in Open Capillary Channels (CCF-1,-2) (Donna Bohman)			selecte	d \triangle	CCF1 PD				32 CDR				CCF 18				CCF-1	Launch	/Dreyer		CCF-1 L US	aunch Pl	Ops	-1 Final	Report	C	CF-2 Fina	l Repor
	Constrained Vapor Bubble Experiment (CVB / LMM-1) (Sue Motil/John Snead)	CVB Co	LMM F Acoust	x Ass'y C U/FIR FU tics Test MM Crew Turnover		[∨] MM FU/FIR U C&DH Te	^V	Fit Safey SR-1 MM FU/F PTCS 1	IR GIU N Fest 🗸	 MST	l v	W/	2/Post Sto	ck at KS	C FHA for l unch (Late Acces	ss 		Fi	CVB inal Rep	ort								
	Condensing Heat Exchanger for Space Systems (CHESS)	Project	Initiatio	h n	FEI						R / CDR		П	VRR				FHA	LMM		i e	1	HHP/B	io Ops?				Eiro	
	(Mike Doherty/D. Truong)	•				$^{\prime}\mid \ \ ^{\prime}$					1			∇						4	Launch	Ops	+	þ				Final	I Report



GRC Exploration Systems Projects

PROGRAM MANAGERS: Fred J. Kohl & Thomas J. Sutliff

BASELINE: 12/14/04 STATUS AS OF: 02/28/05

2004 2005 2006 2007 2008 2009 2010 FY 2004 FY 2005 **FY 2006** FY 2007 **FY 2008 FY 2009** FY 2010 FY 2011 PROGRAM/PROJECT 1st 2nd 3rd 4th 1st 2nd 3rd 1st 2nd AMJ J A S ON D J F M AMJ J A S ON D J F M AM J J A S ON D J F M AM J J A S ON D J F M AM J J A S ON D J F M AM J J A S ON D J F M AM J J A S ON D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D D J F M AM J J A S ON D J F M AM J J Boiling Experiment Facility / Ph-2 Safety MABE & NPBX Microheater Array Boiling Experimen Launch Ph-3 Safety Review Final Report Nucleate Pool Boiling under VRR Review MABE & NPBX Ops \triangle Microgravity Experiment (Frank Vergilii) 6.1.1.4 | Solid Waste Management (SWM) Super Critical Water Oxidation Integrated Ground A/C Waste System **Experiment Regmts** Support (SCWO) Design complete System Design/Bld. Test Pgm. Final Report Decision Trade Study (Dick Lauver) \triangle ∇ Rig Complete Gravity Effects in Lyophilization Develop Findings **Initiate Functional** C9 Tests (John Caruso) **BBD Tests** Assessment \(\trianglerightarrow{7} \) ∇ 6.1.1.5 Food Management System (FMS) Test data on Operations Advance Food Technology (AFT) Test Optimized prototypical food processors & Prep Coordinate with Design Aircraft
Containment facility (John McQuillen) Outreach Programs types of food processing 6.1.1.6 Biomass Production (BP) Crop Production Liquid Management **Partial Gravity Enhanced Root** Project Initiation Cabin Atmosphere **Engineered Substrate** (Charles Niederhaus) Effects Report Zone Sensors Prototype Effects Report ∇ 6.1.2 Advanced Extra Vehicular Activities (AEVA) Investigating the Structure of Paramagnetic New Sample Prep Launch on ATV-1 Aggregates from Colloidal Emulsions Final Report ∇ Ops (InSPACE-2) (Donna Bohman) In-Space Suit Technologies ConOps PDR CDR Surface Suit Technologies Subsystem ConOps Suit Regs SRR Reqs 6.1.3 Advanced Environmental Monitoring and Control (AEMC) Air, Water, Surface Monitoring **External Environment Monitoring** Life Support Integrated 6.1.4.1 Contingency Response Techologies (CRT) Fire Prevention, Detection, and FLEX CIA FU CIR/MDCA Rack level testing complete Suppression (FLEX) Assy Complete Launch Final Report PH-3 Flight Safety Review FLEX Avionics FU Assy (Craig Myhre) Ops Pre-ship Review -1 Flow Enclosure Accommodating VRR SRD Delta Phase 1/01 Preliminar Novel Investigations in Combustion of PHASE 2 PHASE 3 PSR FHA **▽ PDR** Report PHASE 0/1 FEANICS-A, -B Ops Solids (FEANICS) (Dave Frate) CDR Smoke Aerosol Measurement PHASE 3 Safety Review PHASE 2 Experiment (SAME) **▽** FĤA PDR/CDR Final Report (Bill Sheredy) Ops $\bigvee \mathbf{PSR}$ **Dust and Aerosol Measurement** DAFT 1&2 Launch DAFT 1&2 Ops Feasibility Test (DAFT) **Final Report** DAFT -3&-4 Launch (Bill Sheredy) DAFT 3&4 Ops



GRC Exploration Systems Projects

PROGRAM MANAGERS: Fred J. Kohl & Thomas J. Sutliff

BASELINE: 12/14/04 STATUS AS OF: 02/28/05

PROGRAM/PROJECT		2004			20	05			20	06			20	07			20	80			20	09			20	10			
	PROGRAM/PROJECT	FY 2	2004		FY	2005			FY 2	2006			FY 2	2007			FY 2	2008			FY 2	2009			FY 2	2010		FY 2	:011
		3rd	4th	1st			4th	1st	2nd	3rd	4th	1st	2nd		4th	1st	2nd	3rd	4th	1st	2nd		4th	1st	2nd	3rd	4th	1st	2nd
		A M J	J A S	OND	J F I	M A M J	JAS	OND	J F M	A M J	JAS	OND	J F M	A M J	J A S	O N D	J F M	A M J	JAS	OND	J F M	A M J	JAS	OND	J F M	A M J	J A S	OND	J F M
6.1.4.2	In-situ Fabrication and Repair (ISFAR)																												
	Coarsening of Solid-Liquid Mixtures (CSLM-2) (Kirk Logsdon)					LF1 2 SPU	s 			4 SPUs	4 SPU	s 4 SPI	Js	4 SPUs	3					Final R	eport								
	Shear History Extensional Rheology Experiment (SHERE) (Kirk Logsdon)	▼ MSG	Testing Therma EM	l Test b Test	tests MSG 1	Vib 1					4	Ops	1		Final R	eport													
	Foam Optics and Mechanics Experiment (FOAM) (Padetha Tin)			CA	ANC	ELL	ED		RDR		De	l livery					Launch					Return	1		F	Final Rep	ort		
6.1.5	In-situ Life Support Processes (ISLSP)																												
	Extraction & Refinement of In-Situ Oxygen and Water (Kurt Sacksteder/Robert Green)				seline IS gram Pl	LSP an	^	Deliver Plan for Design of Productio	out year	reffort	elopment							Deliver: Prototy		 ar 02 / H2 	20								
6.1.7.3	Multiphase Flow Technology (MFT)																												
	Two-Phase Flow Facility (TØFFy) (Jack Lekan)	Т	1g Ther	modyna Operat	imic ional	Basel		RDR	ational	PDR				VRR					FHA		aunch Ops					Final R	eport		
	Liquid Management Experiment (LME) (Hanh Do)					RCR		RDR		PD ▽		СВ					FH	_	Launch)ps			Return	Final	Report				
6.1.7.4	Transition Research Projects (TRP)					+																							\Box
	Binary Colloidal Alloy Test (BCAT-3) (Monica Hoffmann)			BCA	T-3 Ops	+			BCAT-3			Fi	nal Repo	ort															
	GRADFLEX (Richard Lauver)		E	SA Initia	ates C/D	CDI		Qual		Fit. Acce Test	ing		aunch			Fi	nal Repo	rt											